

REMARKS

Claims 1, 5, and 234 have been amended to point out more clearly what was implicit in the claims before. Claims 230 and 233 have been canceled without prejudice or disclaimer of any subject matter. Claims 1 and 5 were amended to more specifically point out the claimed probes, particularly the recognition element of part c. Claim 234 was also amended to correct an inadvertent error in the antecedent basis for “target agent”. The correct term “receptor agent” has been added to the claims.

No new matter has been added by virtue of amendments made to the claims.

Applicants now address various grounds of rejection set forth by the Office in the Final Office Action dated May 26, 2009 (“Final Office Action”).

Claim Rejection under 35 USC §112, second paragraph

Claims 1-9, 58-61, 82-91, 106-108, 117, 131-135, 157-159, and 228-235 were rejected in the Final Office Action as being indefinite for reciting “optionally” in claims 1 and 5. Applicants respectfully disagree for reasons of record. See the Response filed February 5, 2009 (“Prior Response”). However to advance prosecution of this case, and without agreeing to the basis of the rejection, the word “optionally” has been removed from claims 1 and 5. Accordingly, reconsideration and withdrawal of this rejection are requested.

Claims 230 and 233 were rejected as indefinite for reciting “target agent is larger and located closer to the location”. While Applicants respectfully disagree that the phrase is at all indefinite, particularly in view of the specification, basis for the rejection is moot in view of this paper.

Claims 233 and 234 were further rejected for reciting “the target agent” in line 1 of the claims. According to the Office there is no antecedent basis for the phrase for the

phrase in claim 5. Basis for this rejection is moot in view of Applicants' submission of the present paper.

Claim Rejection under 35 USC §102(b)

Claims 1-9, 58-61, 90-91, 106-108, 117, 131-135, 157-159, and 228-235 were rejected in the Final Office Action as being anticipated over U.S. Patent No. 5,925,517 to Tyagi et al. Applicants respectfully disagree.

In formulating the rejection, the Office took the position that the instant specification does not fully define a "first object sequence" and a "first complement sequence". Action at pgs. 8 and 10. Applicants respectfully disagree and refer the Office to pg. 9, lines 6-25 of Applicants' specification, for instance, where the terms are defined. Further disclosure relating to object and complement sequences can be found throughout the application including the Drawings. See Figures 1 and 2, for instance and supporting disclosure at pg. 17, lines 14-22.

Particular examples of a "first object sequence" and a "first complement sequence" are provided, for instance, in the Examples section. See, for instance, Example 1 and in particular SEQ ID NOs. 123 and 124.

The Office took the further position that the term "coupling element" is not defined by Applicants' specification. Action at pg. 6. Applicants respectfully disagree. That term is defined throughout the instant application as filed including the Drawings. For instance, see pg. 27, lines 25-28. Particular Examples of suitable coupling elements are provided at pg. 34 of the application. Figure 1 shows a particular coupling element and pgs. 39-42 provide guidance on the design of specific coupling elements. Accordingly, the specification defines and provides ample disclosure regarding the term "coupling element".

Particular examples of suitable coupling elements can be found, for instance, in the Examples section. See, for instance, Example 1 including reference therein to Figure 23A.

The Office has further taken the position that “system” is not defined in the instant specification. Action at pg. 12. It is respectfully submitted that the word would be well understood by one working the field who read the specification.

The Office has further taken the position that “probe ligand” has not been explicitly defined by the specification. Final Office Action at pg. 13. Applicants respectfully disagree. See pg. 16, lines 1-12; pgs. 42-43, bridging paragraph; and Figure 1, for example. Particular examples of suitable probe ligands can be found, for instance, in the Examples section.

To the extent the instant rejection under 35 USC Sec. 102 relies on the incorrect position that “first object sequence”, “first complement sequence”, “coupling element”, “probe ligand” and “system” are not defined by Applicants’ specification, the rejection cannot stand. Reconsideration and withdrawal are requested.

On pg. 14 of the Final Office Action, the Office took the position that language relating to branched recognition elements in claims 1 and 5, part c, was not fully considered in view of the cited reference (USP 5,925,517 to Tyagi et al.) because the word “optionally” was recited. While Applicants respectfully disagree with this position, grounds for not considering part c of claims 1 and 5 in their entirety are moot in view of this submission.

Additionally, the Tyagi et al. patent as cited does not teach or suggest a recognition element conjugated through the coupling element to a location inside the first hybridized duplex region of the first object or first complement sequence so that the recognition element is branched out from the first hybridized duplex. See Applicants’ claims 1 and 5 which both have this language. A probe having this spatial relationship

between the recognition element, coupling element, first object sequence (or first complement sequence) and first hybridized duplex is not taught by the cited patent as relied on by the Office. Accordingly, the rejection should be withdrawn.

Moreover, the patent as cited does not teach or suggest any probe in which the recognition element or probe ligand of claims 1 and 5, part c, respectively, is operably linked with the first pair of nucleic acid sequences, coupling element, and detectable label featured in the claims.

The invention of claims 1 and 5 is further distinguishable from the cited patent. For example, and referring now to Figures 1 and 2 of the Tyagi patent, sequences 2a and 2b are part of arms 3, 4 and stem duplex 5, i.e., it is a continuous partially double-stranded nucleic acid sequence having sequences 2a and 3 contained in one continuous single strand and sequences 2b and 4 contained in the other continuous single strand. In contrast, the probe and affinity probe of claims 1 and 5, respectively, are not continuous i.e., they feature a recognition element/probe ligand that is branched away from the first hybridized duplex as an additional branched chain.

In view thereof, reconsideration and withdrawal of the claim rejections are requested.

Claim Rejection under 35 USC §103(a)

Claims 82-89 stand rejected as being unpatentable over US Pat. No. 5,925,517 to Tyagi et al. in view of Kolesar et al. (US Pat. No. 6,261,781). Applicants respectfully disagree particularly in view of the present submission.

The deficiencies of the '517 patent in view of claim 1 as amended have been discussed above (from which claims 82-89 depend). U.S. Pat No. 6,261,781 to Kolesar et al as relied on fails to remedy these deficiencies. In particular, none of the references taken individually or together teach a probe with a recognition element conjugated through the coupling element to a location inside the first hybridized duplex region of the

first object or first complement sequence so that the recognition element is branched out from the first hybridized duplex. On this basis alone, the rejection should be withdrawn.

Moreover, the Kolesar patent taken alone or together with Tyagi et al. as cited does not teach or suggest any probe in which the recognition element or probe ligand of claims 1 and 5, part c, respectively, is operably linked with the first pair of nucleic acid sequences, coupling element, and detectable label featured in the claims.

In view thereof, reconsideration and withdrawal of the claim rejections are requested.

CONCLUSIONS

Early and favorable consideration of the instant application is earnestly requested. Although it is believed that no additional fee is needed to consider this submission (other than the fee submitted along with the Petition For Extension of Time), the Office is hereby authorized to charge our deposit account no. 04-1105 for such fee.

Respectfully submitted,

JHK Law

Dated: November 27, 2009
(Friday after Thanksgiving)

By: Joseph Hyosuk Kim/
Joseph Hyosuk Kim, Ph.D.
Reg. No. 41,425

P.O. Box 1078
La Canada, CA 91012-1078
(818) 249-8177 x101 – direct
(818) 249-8277 - fax